

Acknowledgements

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NOTES ON THE BEHAVIOUR OF THE ROBBER FLY *PROMACHUS INTERPONENS* WALKER (DIPTERA: ASILIDAE)

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Abstract

At Iron Range, Claudie River district, north Queensland, adult male *Promachus interponens* Walker were seen to hover in the vicinity of females, a behaviour previously unrecorded for Australian Asilidae. Observations showed that hovering was one of the components of courtship behaviour.

Introduction

The genus *Promachus* Loew is a widely distributed and numerous group of large robber flies. They occur in most regions of the world, but in Australia are recorded only from eastern states. The most recent comprehensive work on Australian species is that of Ricardo (1913), recording six species. *Promachus* is distinguished from other Australian genera of Asilini, by the presence of three submarginal wing cells and distinctive genitalia, males having a three-pronged aedeagus and females with an elongated ovipositor.

P. interponens is a large, dark brown and black asilid, 23-26 mm in length, distributed from the Molucca Islands to north-eastern Australia. Males have distinct shining silver-white hairs on the dorsal and anterior surfaces of the tibiae, the mid tibiae having the densest covering. Females lack these silver-white hairs, but have similar body colouration.

Courtship behaviour has rarely been observed in this family of flies. Lavigne and Holland (1969) reported the courtship hovering of *Heteropogon wilcoxi* James, *Cyrtopogon willistoni* Curran, *Stichopogon trifasciatus* (Say), *Diogmites angustipennis* Loew and *Promachus dimidiatus* Curran, from America, and summarised other records of courtship hovering in asilids. Lavigne (1970) also reports the courtship hovering of *Heteropogon maculinervis* James. No information on habits or biology of the genus has been recorded for Australian species.

Capture of prey

During 1974, adults of *P. interponens* began to appear in early September at Iron Range, Claudie River district, north Queensland. By November it was by far the most numerous asilid, appearing most frequently in rainforest clearings, less often on the edge of the rainforest and was seen only once in open *Melaleuca* country. Adults were seen to

pounce on prey either from low branches or twigs, never lower than 30 cm above the ground, or from leaves and branches up to 10 m above the ground. Prey was seized in the air and by the time the robber fly had returned to a perch, its hypopharynx had normally been inserted into the side of the neck of prey. Manipulation of prey was usually carried out in mid flight. Sometimes manipulation occurred at rest, using the mid legs and one fore leg. Males investigated most of the larger insects (over 15 mm) which flew past rapidly, but preferred to capture smaller prey. Females only investigated the smaller slower-flying insects. Investigatory flights were up to 60 m away from the perch. The green tree ant, *Oecophylla smaragdina* F., appeared to disturb *P. interponens*, for as soon as an ant approached within 1.5 cm, the asilid would fly no less than 4 m from its perch. Prey taken included the following insect orders: Lepidoptera, Hymenoptera, Diptera, Hemiptera and Orthoptera.

Specimens of *Maira* Meigen and *Pogonosoma* Rondani (both Asilidae), began to appear with *Promachus interponens* during October, but preyed exclusively from tree trunks about 1-2 m above the ground. They were seen to follow prey visually as it passed, a habit not observed in *P. interponens*, although specimens of this species were quick to become airborne and sometimes hovered briefly.

Courtship behaviour

Courtship behaviour was seen on many occasions, mainly between 10 a.m. and 3 p.m. Upon locating a female on a perch, the male hovered in mid air, facing the female. His first two pairs of legs were folded tight against the thorax, whilst the hind legs were extended along and below the body, similar to the position held when about to grasp prey. With the legs held this way, the silver-white hairs on the male tibia confronted the female with a brilliant silver-white "V" shaped band, being perhaps a species recognition character. The male hovered 30-45 cm in front of the female and produced a loud, characteristic, high-pitched hum. The courtship hover was observed to occur as low as 30 cm to over 7 m above ground level. It was varied in duration from 5 seconds to 2.6 minutes. A receptive female remained stationary on the perch, not moving until the male darted towards her. As soon as copulation began, the pair would fly high into the rainforest canopy. Non-receptive females flew off while the male hovered, the male pursuing her and again hovering after she had landed. This took place several times until the female eluded the male. Oviposition was not observed.

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